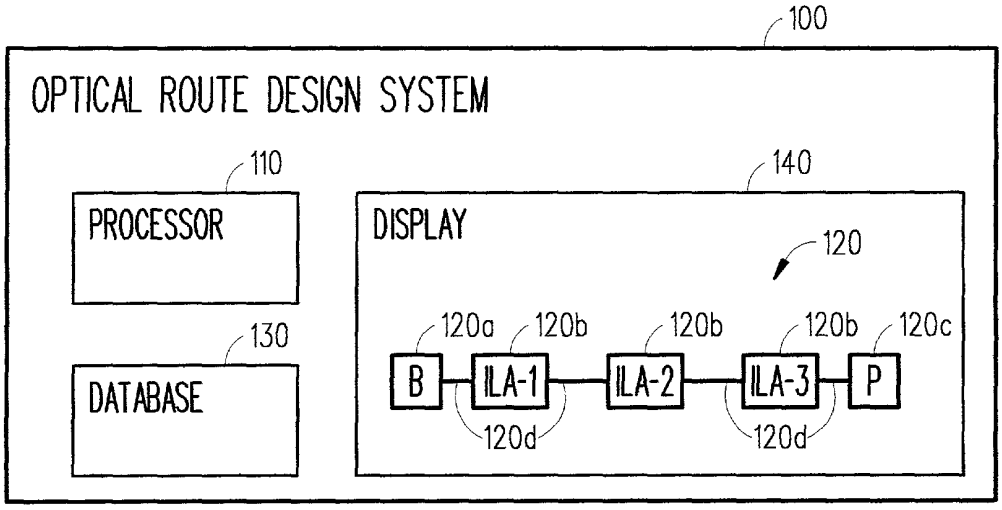
100
OPTICAL ROUTE DESIGN SYSTEM
110
PROCESSOR
140
DISPLAY
120
120a
120b
120b
120b
120c
B
ILA-1
ILA-2
ILA-3
P
120d
120d
130
DATABASE

FIG. 1

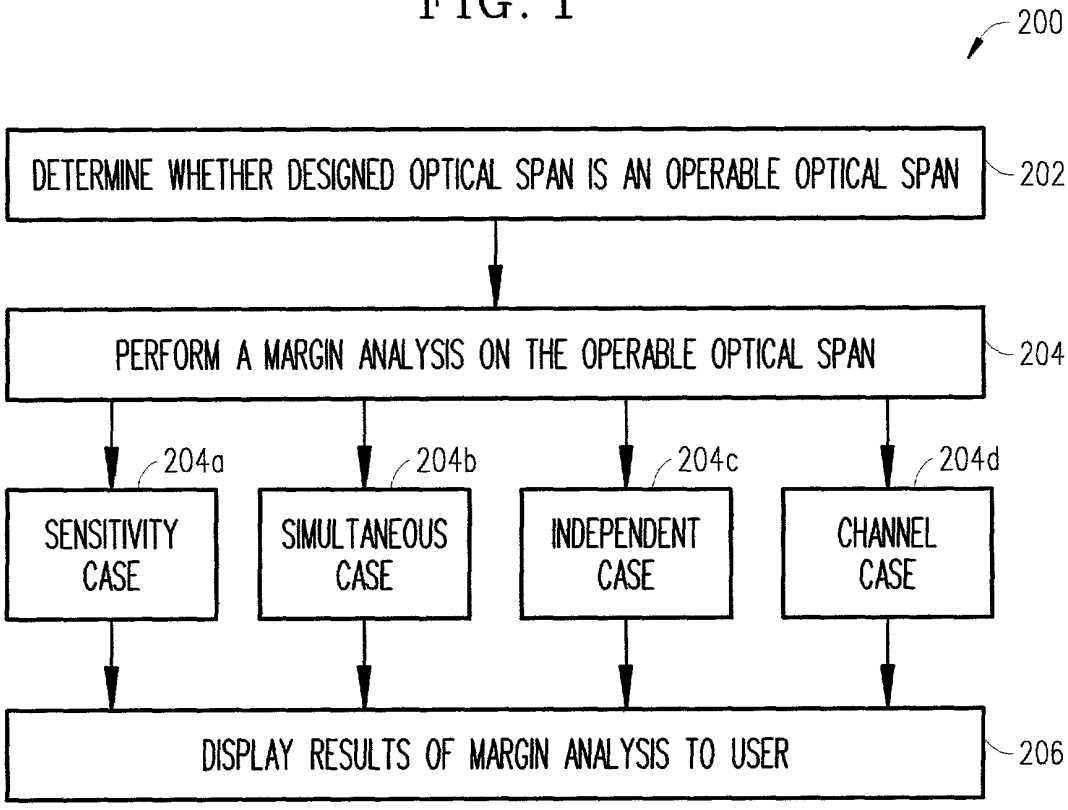
200
DETERMINE WHETHER DESIGNED OPTICAL SPAN IS AN OPERABLE OPTICAL SPAN
202
PERFORM A MARGIN ANALYSIS ON THE OPERABLE OPTICAL SPAN
204
204a
204b
204c
204d
SENSITIVITY CASE
SIMULTANEOUS CASE
INDEPENDENT CASE
CHANNEL CASE
DISPLAY RESULTS OF MARGIN ANALYSIS TO USER
206

FIG. 2

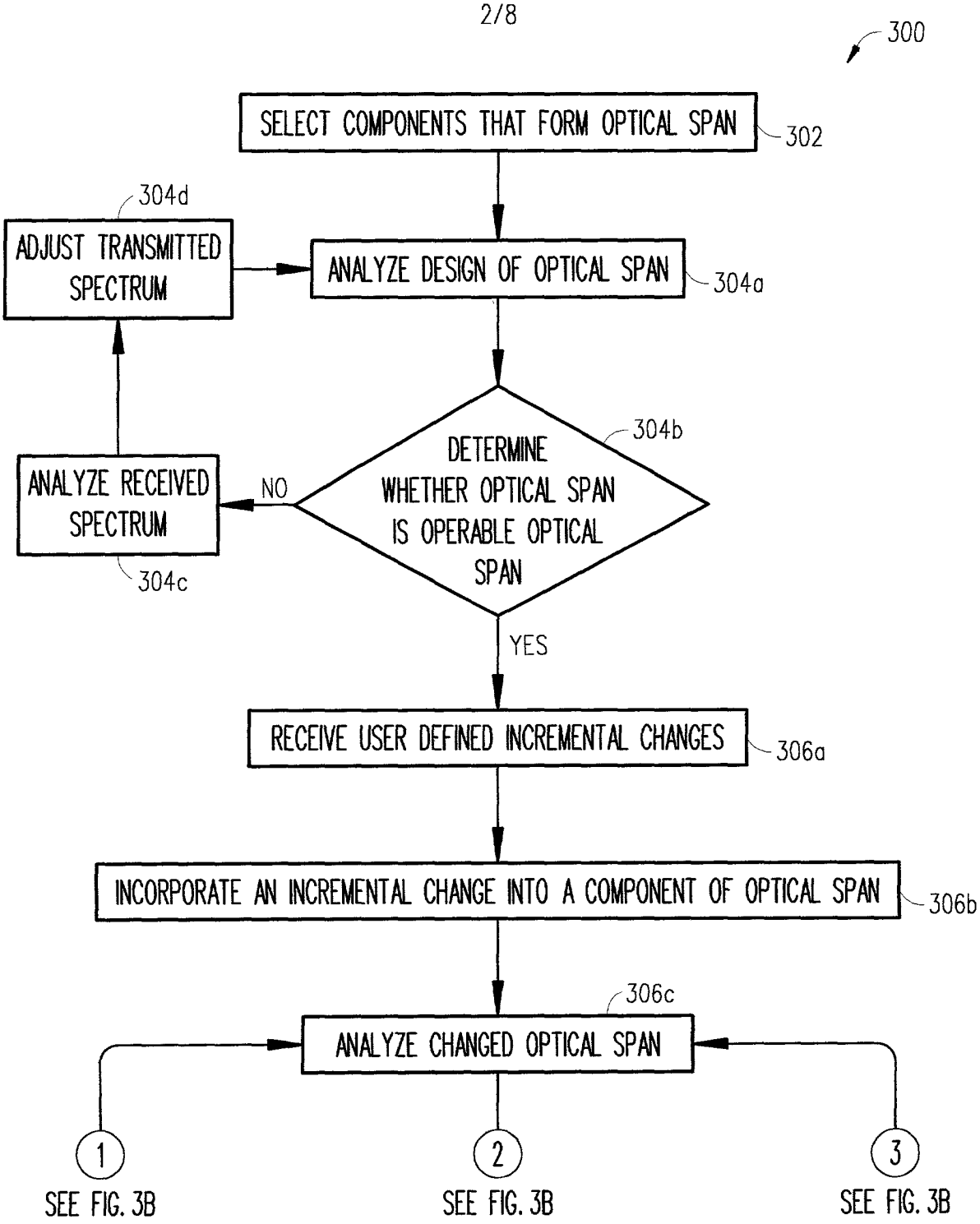
300
SELECT COMPONENTS THAT FORM OPTICAL SPAN
302
304d
ADJUST TRANSMITTED SPECTRUM
ANALYZE DESIGN OF OPTICAL SPAN
304a
304b
DETERMINE WHETHER OPTICAL SPAN IS OPERABLE OPTICAL SPAN
NO
ANALYZE RECEIVED SPECTRUM
304c
YES
RECEIVE USER DEFINED INCREMENTAL CHANGES
306a
INCORPORATE AN INCREMENTAL CHANGE INTO A COMPONENT OF OPTICAL SPAN
306b
306c
ANALYZE CHANGED OPTICAL SPAN
1
SEE FIG. 3B
2
SEE FIG. 3B
3
SEE FIG. 3B

FIG. 3A

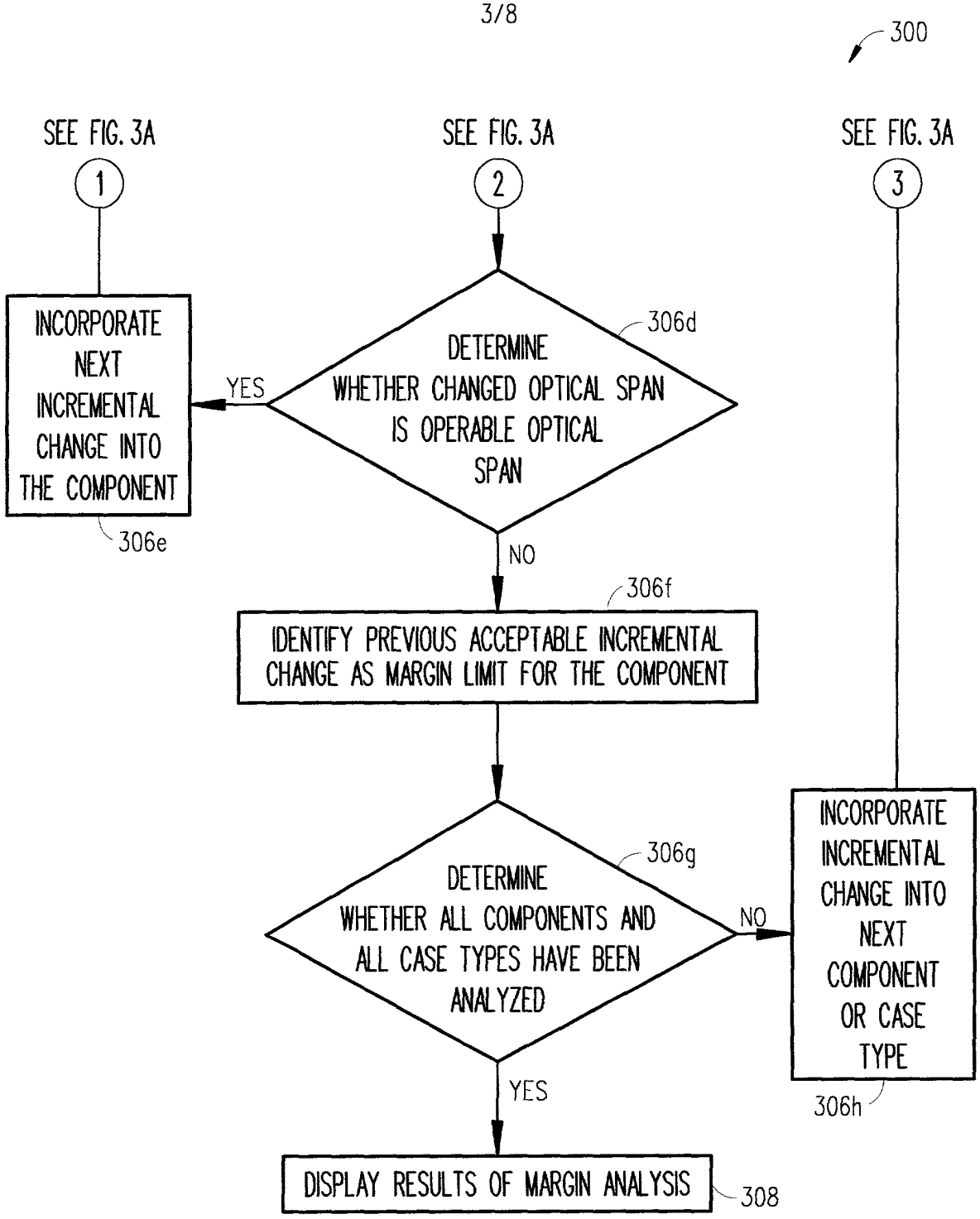
300
SEE FIG. 3A
1
SEE FIG. 3A
2
SEE FIG. 3A
3
INCORPORATE NEXT INCREMENTAL CHANGE INTO THE COMPONENT
306e
YES
DETERMINE WHETHER CHANGED OPTICAL SPAN IS OPERABLE OPTICAL SPAN
306d
NO
306f
IDENTIFY PREVIOUS ACCEPTABLE INCREMENTAL CHANGE AS MARGIN LIMIT FOR THE COMPONENT
DETERMINE WHETHER ALL COMPONENTS AND ALL CASE TYPES HAVE BEEN ANALYZED
306g
NO
INCORPORATE INCREMENTAL CHANGE INTO NEXT COMPONENT OR CASE TYPE
306h
YES
DISPLAY RESULTS OF MARGIN ANALYSIS
308

FIG. 3B

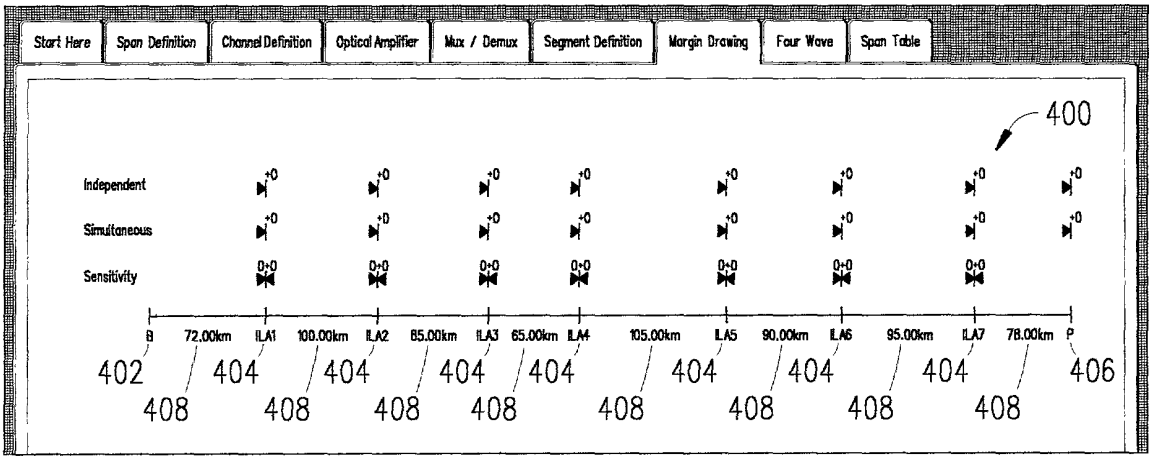

FIG. 4A

408

	Site Name	Site Type	Amp Type	Amp Power Selection	Amp Output Power (dbm) min	Amp Output Power (dbm) max	Segment Distance (km)	Segment Fiber Type	FDP and Splice Losses (db) min	FDP and Splice Losses (db) max	Calculated Segment Fiber Loss (db) min	Calculated Segment Fiber Loss (db) min	Required In-Line Attenuation (db)
402	B	Booster	v17252f09	17.0	17.0	17.0	72	Alcatel SSMF (G.652)	1.94	2.9	17.06	20.9	8
404	ILA1	ILA	v17252f09	17.0	17.0	17.0	100	Alcatel SSMF (G.652)	2.15	3.25	23.15	28.25	0
	ILA2	ILA	v17252f09	17.0	17.0	17.0	85	Alcatel SSMF (G.652)	2.03	3.05	19.88	24.3	4
	ILA3	ILA	v17252f09	17.0	17.0	17.0	65	Alcatel SSMF (G.652)	1.88	2.8	15.53	19.05	9
	ILA4	ILA	v17252f09	17.0	17.0	17.0	105	Alcatel SSMF (G.652)	2.18	3.3	24.23	29.55	0
	ILA5	ILA	v17252f09	17.0	17.0	17.0	90	Alcatel SSMF (G.652)	2.06	3.1	20.96	25.6	3
	ILA6	ILA	v17252f09	17.0	17.0	17.0	95	Alcatel SSMF (G.652)	2.09	3.15	22.04	26.9	1
	ILA7	ILA	v17252f09	17.0	17.0	17.0	78	Alcatel SSMF (G.652)	1.97	2.95	18.35	22.45	6
406	P	Preamp	1926lstdf2	17.0	20.0	20.0							
	Total						690.0		16.30	24.50	161.19	197.00	31.00

FIG. 4B

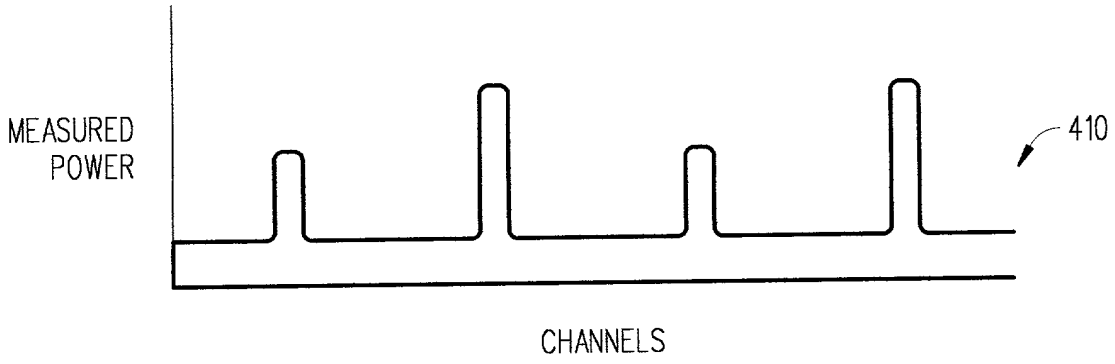

FIG. 4C

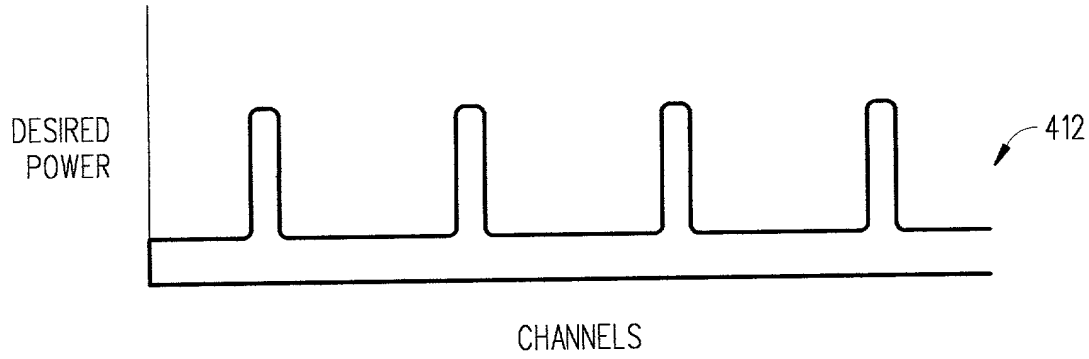

FIG. 4D

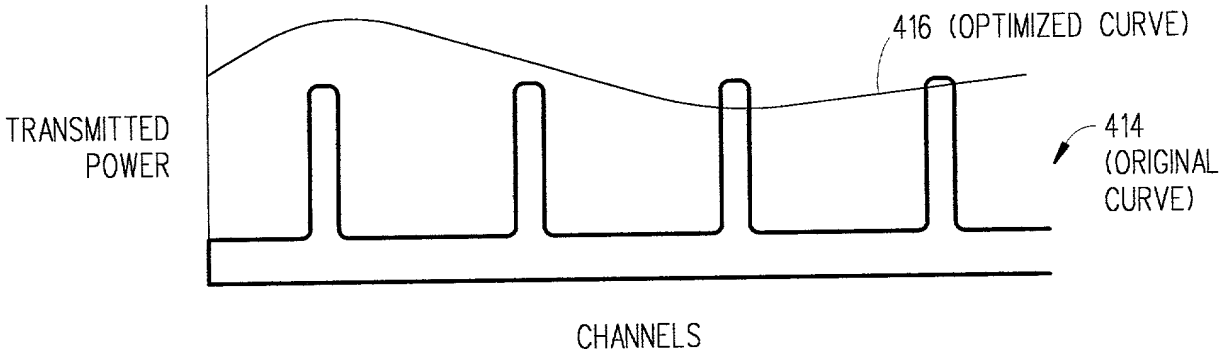

FIG. 4E

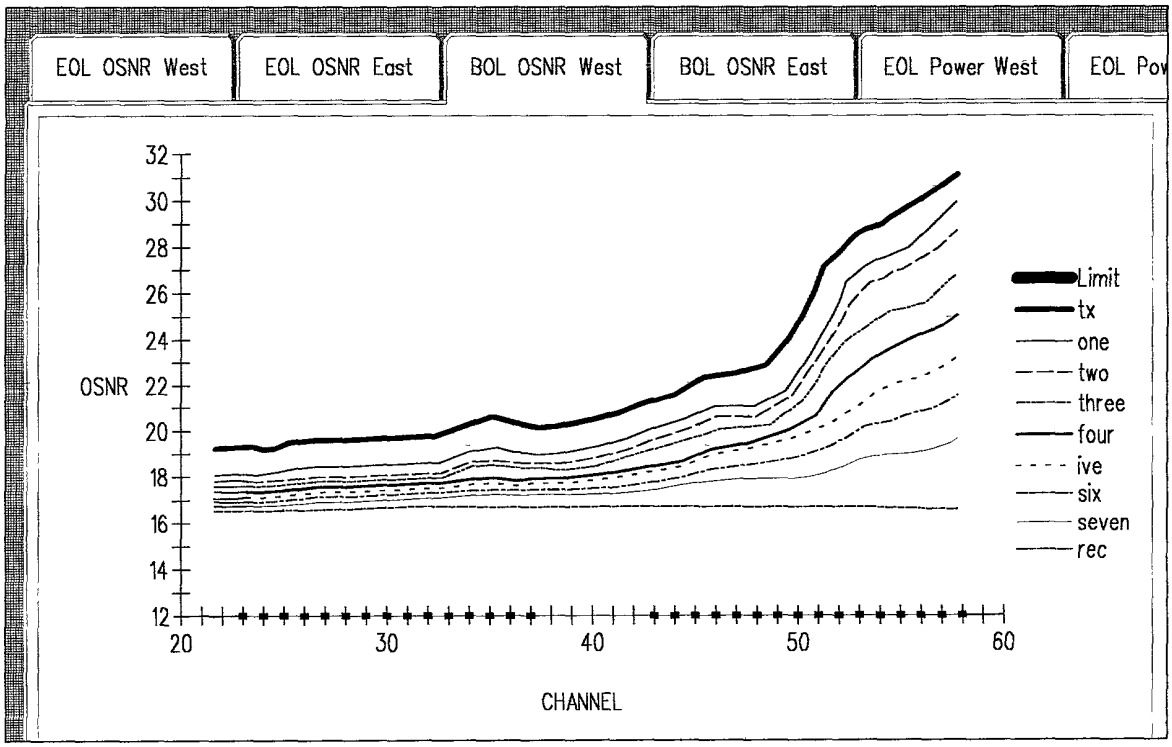
EOL OSNR West
EOL OSNR East
BOL OSNR West
BOL OSNR East
EOL Power West
EOL Pow
OSNR
32
30
28
26
24
22
20
18
16
14
12
20
30
40
50
60
CHANNEL
Limit
tx
one
two
three
four
ive
six
seven
rec

FIG. 4F

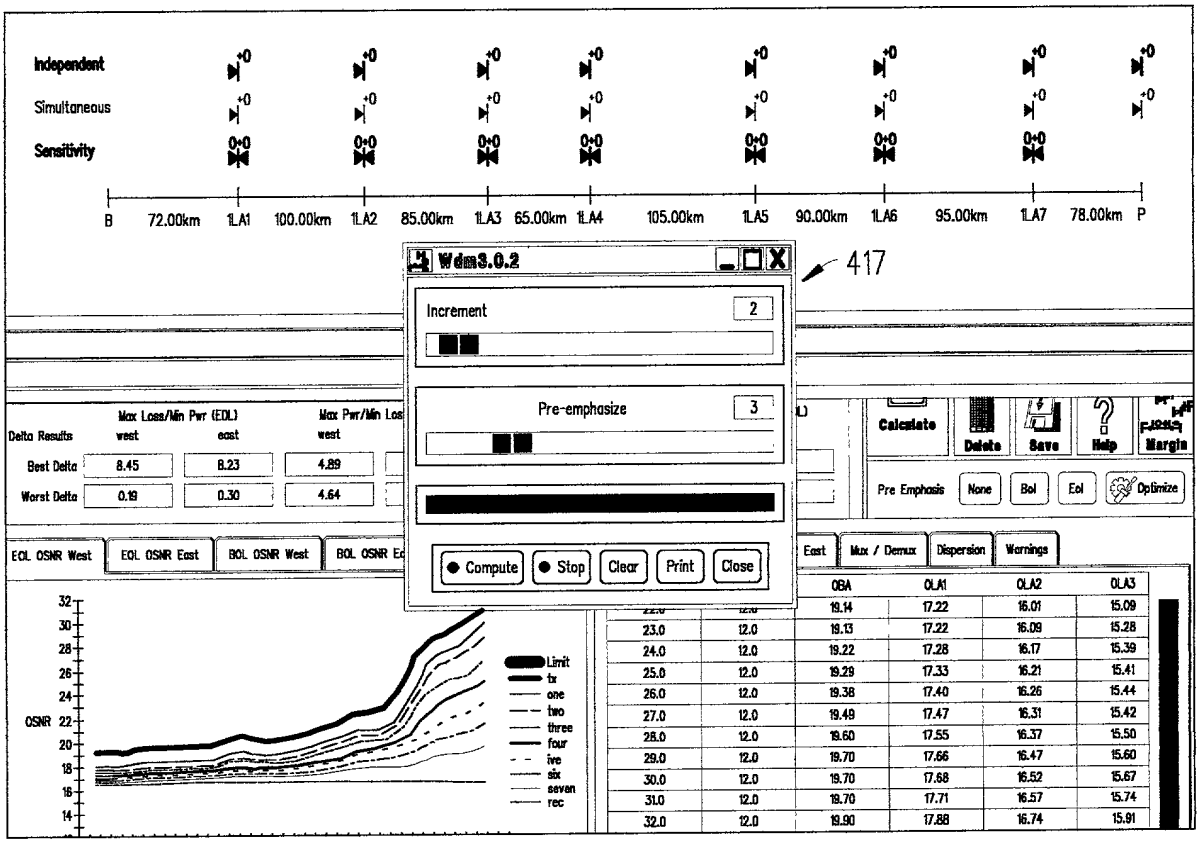
Independent
Simultaneous
Sensitivity
B
72.00km
1LA1
100.00km
1LA2
85.00km
1LA3
65.00km
1LA4
105.00km
1LA5
90.00km
1LA6
95.00km
1LA7
78.00km
P
Wdm3.0.2
417
Increment
2
Pre-emphasize
3
Compute
Stop
Clear
Print
Close
Calculate
Delete
Save
Help
Margin
Pre Emphasis
None
Bol
Eol
Optimize
Delta Results
Best Delta
Worst Delta
8.45
8.23
4.89
0.19
0.30
4.64
EOL OSNR West
EOL OSNR East
BOL OSNR West
East
Mux / Demux
Dispersion
Warnings
OSNR
Limit
tx
one
two
three
four
five
six
seven
rec
OBA
OLA1
OLA2
OLA3

FIG. 4G

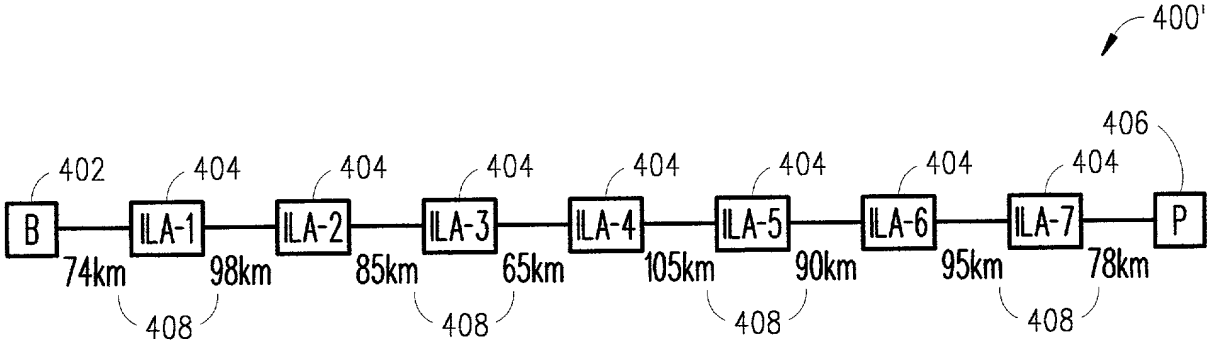
400'
406
402
404
B
ILA-1
ILA-2
ILA-3
ILA-4
ILA-5
ILA-6
ILA-7
P
74km
98km
85km
65km
105km
90km
95km
78km
408

FIG. 4H

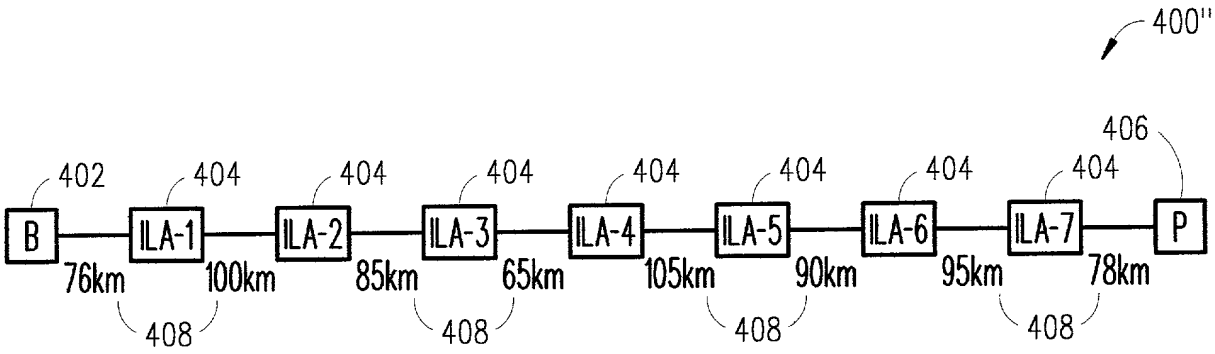
400''
406
402
404
404
404
404
404
404
404
404
B
ILA-1
ILA-2
ILA-3
ILA-4
ILA-5
ILA-6
ILA-7
P
76km
100km
85km
65km
105km
90km
95km
78km
408
408
408
408
408
408
408

FIG. 4I

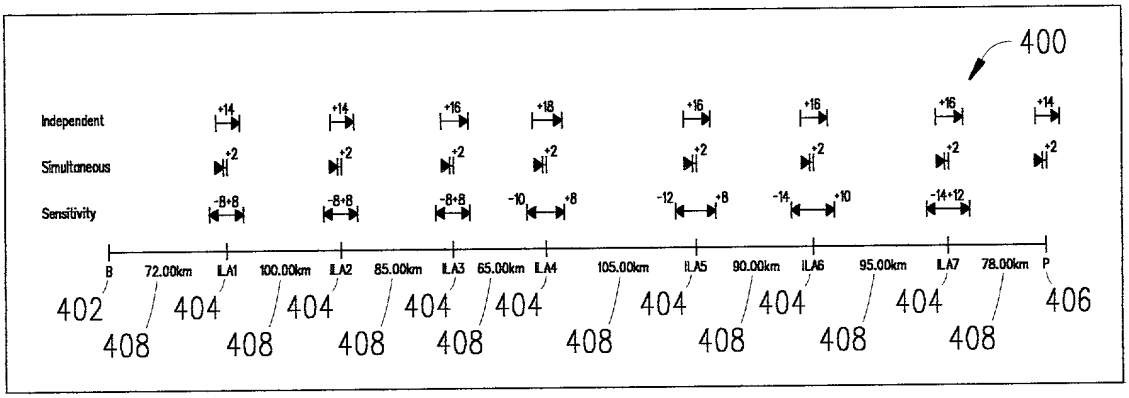
400
Independent
Simultaneous
Sensitivity
+14
+14
+16
+18
+16
+16
+16
+14
+2
+2
+2
+2
+2
+2
+2
+2
-8+8
-8+8
-8+8
-10
+8
-12
+8
-14
+10
-14+12
B
72.00km
ILA1
100.00km
ILA2
85.00km
ILA3
65.00km
ILA4
105.00km
ILA5
90.00km
ILA6
95.00km
ILA7
78.00km
P
402
404
404
404
404
404
404
404
406
408
408
408
408
408
408
408
408

FIG. 4J